Comparison of Yohkoh and Ulysses Observations of the Boundaries of High Speed Streams in the Solar Wind

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When a high-speed solar-wind stream moves out from the Sun, dynamical processes severely distort the, velocity profiles cm the leading edges of the stream, but are not important on the trailing edges where the fast plasma runs away from the slower plasma behind. It has previously been shown that when trailing-edge speed profiles are mapped back to the Sun under the assumption of constant radial flow, they show very sharp longitudinal gradients or shears, called dwells, which allow the locations of the stream edges 6. to be calculated with an accuracy of-] 0° in longitude, in the present study we compare the solar latitudes ant] longitudes of the 7. dwells observed by the scalar windexperiment cm Ulysses to the edges of coronal holes measured by the soft x-ray telescope on Yohkoh. The shortest great-circle distances between the locations of the dwells and the boundaries of the coronal holes are. calculated to obtain lower limits to the expansion of the streams between the Sun and interplanetary space. This expansion factor enters into theories of the acceleration of the solar wind.

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